

MARCH 10.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-three members present.

The following papers were presented for publication :—

“On the Anatomy of *Ariolimax* and other *Pulmonata*.” By W. G. Binney.

“Descriptions of some new species of Reptiles.” By Edward D. Cope.

*Elevation of the Trunks of Trees.*—Mr. THOMAS MEEHAN referred to remarks made on a former occasion—not communicating anything new to science—but in regard to matter introduced into a lawsuit, as to whether the trunks of trees would elongate after once formed. He suggested that trees growing on a rock, by the natural thickening of the roots beneath, would lift the tree four inches in forty years, which covered the matter in dispute.

Since that time, however, Dr. Lapham, the Botanist, and State Geologist of Wisconsin, had called his attention to a force at work in elevating the trees of that region, which he believes had not before been recognized, and which he thought of interest sufficient to merit a notice in the Academy's Proceedings. This was that frost gradually lifted trees so that the trunk would sometimes appear in time to have elongated a foot or more.

Since Dr. Lapham had made the suggestions, he had examined trees in the vicinity of Philadelphia and found unmistakable evidence that large numbers of trees had been raised in the manner stated. As was well known, most trees standing by themselves had the collar of the tree of much greater diameter than the trunk above; and the upper portions of the roots, springing from about the collar, were considerably above the surface of the ground. He had supposed, and he thought this was the impression of most observers, that this arose merely from the annual deposition of wood—the thickening upwards of the roots—but, on examination, it could be seen in many cases that the axis, or original centre of the root, once of course below the soil, was now above the surface.

That this was caused by the action of frost was probable from what we know of its action on vegetation by what is known as “drawing out.” When the land freezes, expansion ensues, drawing the clover root up with it, leaving, of course, a cavity from whence the root was drawn. When the first thaw came, the liquid, carrying earthy matter, entered the cavity; and thus the clover root was prevented from descending to its original position.

It was as true of trees as of the clover plant. Roots elevated found the cavities below partially filled, and could not thus permit of the tree being quite as low as before. Dr. Lapham thought that in the West large old trees blew over much more readily than younger ones, though the comparative weight of head and roots were proportionally the same, chiefly because the older trees had been drawn nearer the surface.

Mr. M. also remarked that the belief was very prevalent among woodmen, that the numerous large roots which marked the surface of an old piece of woodland "like railroads on a modern map" were not originally near the top, but had grown to the surface. He had always supposed these also to result from thickening, but he now had seen some cases in which this would not account for it, and only the frost-lifting power would. So, also, in many swampy pieces of land, much of the vegetation had the appearance of tussocks, and the land as if it had been washed away from around the roots. It was not probably from annual growths, but from gradual liftings of the plants from year to year and the filling in of the spaces beneath by the soft mud.

It was likely that one of the chief offices of the tap roots was to guard the tree from this frost lifting as much as possible. His impression was that the trees of tropical climates had not near the development of tap roots which are found in the more northern ones, but this was a matter for further investigation.

---

MARCH 17.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty members present.

The death of Dr. Wm. S. Halsey was announced.

---

MARCH 24.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-seven members present.

*On Actinophrys sol.*—Prof. LEIDY, after describing the structure and habits of this curious rhizopod, said that he had recently observed it in a condition which he had not seen described. He had accidentally found two individuals including between them a finely granular rayless sphere nearly as large as the animals themselves. These measured, independently of the rays, 0.064 mm. in diameter; the included sphere 0.06 mm. He supposed that he had been so fortunate as to find two individuals of *Actinophrys* in conjunction with the production of an ovum.